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A new genus of ectoparasitic trematode, *Aporocotyle simplex*, has been discovered by Odhner (*Centralb. Bakt. u. Par.*, 1. Abt., Bd. XXVII, p. 62) on the gills of *Pleuronectes*. It stands in sharp contrast with all forms of the group hitherto described, in that it lacks entirely the suckers and all other specialized apparatus for attachment so characteristic of the group.

The endoparasitic trematodes of *Chelonia* are treated by Braun in two articles (*Centralb. Bakt. u. Par.*, 1. Abt., Bd. XXV, p. 714, and Bd. XXVI, p. 627). A considerable number of species, both old and new, are carefully described. Among the latter is an American form, *Monostoma renicapitate*, which has not been noted since the original scanty description of Leidy.

The species of *Filaria* found in human blood are discussed by Von Linstow (*Zool. Anz.*, Bd. XXIII, p. 76). The characteristics of each supposed species are given in full, with citations from some rather inaccessible authorities. The distribution of each is also considered.

Mr. Willis S. Blatchley's *Twenty-fourth Report of the Geological Survey of Indiana* contains, besides important geological and mining matter, a number of valuable papers on the local natural history. E. B. Williamson contributes a descriptive catalogue of the Dragonflies; R. E. Call, an illustrated catalogue of the Mollusca, and Stanley Coulter a catalogue of flowering plants and ferns. Mr. Blatchley continues his useful notes on the reptiles and batrachians of Vigo County.

BOTANY.

Two Recent Mushroom Books. — The last half decade has been notable for the number of new mushroom books and papers, and even more for the increase in fungus-eating in this country. Up to the time that the late Mr. Gibson turned his happy faculty of pen and pencil to the subject, most people had held a vague but fixed idea that none but the expert mycologist could turn mycophagist at large without the probability being great that his friends would ultimately record in sadness the final result of some last experimental eating of a species "supposed to be" wholesome, — only Morels, "the" Mushroom, and a few others grossly marked being safe for the layman's consumption. By his clear descriptions and exquisite

illustrations Mr. Gibson made possible the recognition of a few — but sufficient — common edible species, while the fact that nearly all of the fatal cases of toadstool poisoning are caused by *Amanita muscaria*, and *A. phalloides* and its closest relatives, led him to brand the genus *Amanita* so forcibly that few of us now care to eat any volva-bearing agaric, however wholesome and delicious experience may have shown it to be. The only really weak point in his *Our Edible Toadstools and Mushrooms* lies in the very emphasis of this most wholesome warning against all amanitas, which causes the minor caution against lurid Boletuses, the emetic Russulas, and other “suspected” species to be overlooked, — a caution reiterated emphatically in Professor Farlow’s review of the book in the columns of *Garden and Forest*.

Mycological clubs and amateur mycophagists have wonderfully multiplied and thriven under the stimulus of this book, which, with its selection of a few unmistakable edible agarics and its branding as deadly of the Amanitas, provides a sufficiency of fungus food for ordinary culinary purposes, with a good mapping out of the safest lines of exploration for the venturesome who must go farther. So far as I know, no fatal or extremely serious cases of toadstool poisoning traced to species not of *Amanita* have occurred in this country in the last few years, except that a well-known phycologist, turned mycophagist, slipped in his determination of a *Boletus* which he thought he recognized from one of Mr. Palmer’s plates, and, with his family, paid a severe, if not the extreme penalty for the error; and that one fatal mistake and several less serious ones have been made in considering *Agaricus (Lepiota) morgani*, an agaric rather common especially in the West, as fit for food, as its congeners appear to be.

The latest important contributions to mushroom literature are by Professor Atkinson¹ of Cornell University, a teacher of cryptogamic botany, and Captain McIlvaine,² who for the past twenty years has been well to the front among the fungus-eaters in this country. Both of these writers are evidently aiming at the same purpose,

¹ Atkinson, G. F. *Studies of American Fungi*. Mushrooms, Edible, Poisonous, etc. Ithaca, N. Y., Andrus & Church, 1900. vi + 275 pp., with 200 photographs by the author and colored plates by F. R. Rathbun.

² McIlvaine, C., and Macadam, R. K. *Toadstools, Mushrooms, Fungi, Edible and Poisonous*. One Thousand American Fungi: How to Select and Cook the Edible; How to Distinguish and Avoid the Poisonous. Indianapolis, The Bowen-Merrill Company, 1900. xxxvii + 704 pp., Pl. LXVII, and many illustrations in the text.

Professor Atkinson stating that he has tried to present the important characters which it is necessary to observe, in an interesting and intelligible way, and to illustrate these by life-size photographic reproductions of the larger fungi, the selection of species being made with a view to the representation of the more important genera, chiefly those containing edible species; while Captain McIlvaine, regretting the absence of any book giving the genus, names, and descriptions of the prominent American toadstools, the edibility of which has been tested or the poisonous qualities of which have been discovered, has attempted to give such information for every species known to be esculent in North America.

Both books are illustrated by colored plates and process reproductions from photographs, which, particularly in Captain McIlvaine's book, are supplemented by diagrammatic drawings. The illustration of pileate fungi is a subject about which opinions may and apparently do differ widely. Few colored plates, not even excluding those of the olden time, which were hand-tinted on a lithograph or engraving, represent the colors any too naturally, and it must be said that the illustrations in color in these two books, though often pleasing to the eye, do not materially affect the truthfulness of this statement. On the other hand, uncolored drawings fail to represent characters which, though imperfectly shown in an ordinary colored plate, may be sufficiently closely suggested in it to serve their purpose. The two books in hand contain a wealth of photographic illustration which in excellence is scarcely surpassed by Mr. Lloyd's well-known photogravure sheets of certain American fungi, and which may be taken as representing nearly or quite the best that can be done by process work; and yet, exquisite as some of this work is, and faithful as the photographic portrait must of necessity be, it is doubtful whether the technical characters which, no less than the gross characters, need to be brought out in illustrating the pileate fungi, are as well shown in the greater number of cases as they could be by an artist's skill, guided by the unimpeachable accuracy of the camera and controlled by the fresh dissection.

Both books are primarily intended for the fungus-eater, and yet their scope is very different, and in both cases extends further than that of Mr. Gibson's book already referred to. Professor Atkinson, while covering the genera pretty fully, devotes a great deal of space to comparatively few, but representative, species, poisonous or edible, while Captain McIlvaine, with nearly or quite equal fullness of treatment, attempts to account for everything. It is easier to

prepare a monographic treatment of an entire group, provided one have the material and the literature at hand, than to make and describe a selection of interesting things from that group, since in the former case, barring errors of omission, provided the work be well done, whatever is sought is sure to be found, while in the other case inevitable disappointment awaits the person hoping to learn about something which the author did not consider it desirable or expedient to include. Doubtless Professor Atkinson's book will so disappoint many people, and yet, for even the laboratory student of pileate fungi, it will prove of great value. On the other hand, Captain McIlvaine's book, lacking the critical touch of the expert mycologist, though it contain the names of plants sought, will probably lead to a certain amount of error; yet it too is a book which should be found on the departmental shelves of every American institution in which mycology is taught. For the novice in fungus-eating, both, though helpful, are likely to prove confusing, since the distinctions made between species in the larger book may not prove easy to make with the fresh plants, in many cases, while the number treated in the smaller book, though restricted, is sufficiently great to embarrass ordinary people by tempting them into difficult paths; and no book of a scope greater than that of Mr. Gibson's, in which only thirty edible species are included, is likely to supplant it for the amateur American mycophagist. The present books, like Gibson's, contain numerous recipes for preparing and cooking edible species, and, for the most part, these promise easily made and palatable luxuries where fungi can be obtained in the fresh state.

Perhaps, in view of the uncertainties attending the use of fungi as food, it may be as well to state that in addition to the avoidance of amanitas, even including the wholesome ones for the sake of greater safety, all species unpleasant to the taste or acrid, all Boletuses, and all specimens which show the slightest trace of discoloration or which have been allowed to become in the least stale, should be left to the person who proposes to derive sufficient pleasure from dangerous experimentation to justify in his own mind the tampering with unnecessary and sometimes great risks. Professor Atkinson, in speaking of the unwholesome species, quotes from chemists in a way to show that in addition to muscarine, the deadly alkaloid of *Amanita muscaria*, and phallin, the more deadly toxalbumin of *Amanita phalloides* and *A. verna*, choline, an alkaloid which in decomposition gives rise to muscarine or a related alkaloid more deadly than itself, and helvellic acid, likewise a most energetic

poison, have been isolated from a considerable number of species regarded ordinarily as dangerous only in a minor way or merely suspicious; and there seems little reason to doubt that much of the ambiguity attending fungi of this class comes from the conversion, in their incipient decay, of a minor and perhaps scanty poisonous substance into a much more dangerous one, so that personal idiosyncrasy or differences between individuals in strength of heart action seem capable of accounting for the divergence of opinion as to the edibility of a number of the dangerous species, like Boletuses, *Gyromitra esculenta*, certain Russulas, *Lepiota morgani*, and, indeed, the *Amanita muscaria* itself.

T.

North-American Pteridophytes. — A sixth edition of Professor Underwood's handbook of the ferns and fern allies occurring north of Mexico,¹ which appears to have been carefully revised, has recently appeared and is likely to meet with ready sale. In it are incorporated records of the occurrence in one flora of several species not before recorded for it, and descriptions of several species regarded as new to science. The author's recent comprehensive investigations of the priority status of generic names in the ferns have been consistently followed up in this book by the rehabilitation of the well-known species of *Cystopteris* in the genus *Filix*, and of what has been known as *Blechnum* (or *Lomaria*) *Spicant* in the genus *Struthiopteris*, while *Aspidium* is now replaced by *Dryopteris*, *Polystichum*, *Phanerophlebia*, and *Tectaria*.

T.

Notes. — An interesting note by Professor Kellerman, on an Ohio station for *Cissus ampelopsis* or *Ampelopsis cordata*, with illustrations, appears in the first number of a new journal, *The O. S. U. Naturalist*, published by the biological club of the Ohio State University, which also contains a list of additions to the Ohio flora, notes on collecting and preserving microscopical plants, and a paper by Kellerman on a foliicolous form of *Ustilago reiliana*, which species is believed to possess the characters of *Cintractia* rather than of *Ustilago* proper.

Viola alabamensis, a new purple-flowered acaulescent species, is described by Pollard in a recent issue of *Proceedings of the Biological Society of Washington*.

A revision of the Cactaceæ of Paraguay, by Schumann, is being published in current numbers of the *Monatsschrift für Kakteenkunde*.

¹ Underwood, L. M. *Our Native Ferns and their Allies, with Synoptical Descriptions of the American Pteridophytes North of Mexico*. New York, Henry Holt & Co., 1900. x + 158 pp., 35 ff., and frontispiece plate. Price, \$1.00.